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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/554,860	05/19/2000	CLAUDINE BRUCK	B45122	6653

20462 7590 04/19/2007

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EXAMINER	
ROONEY, NORA MAUREEN	
ART UNIT	PAPER NUMBER
1644	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/554,860	BRUCK ET AL.	
	Examiner	Art Unit	
	Nora M. Rooney	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *24 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,12 and 18-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 12 and 18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

RESPONSE TO APPLICANT'S AMENDMENT

1. Applicant's amendment filed on 01/24/2007 is acknowledged.

2. Claims 1, 12 and 18-20 are pending.

3. Claims 1, 12 and 18-20 are under examination as they read on a recombinant mutant allergen and a vaccine thereof.

Claim Objections

4. Claim 20 is objected to because of the following informalities: Claim 20 is in improper Markush format. It is suggested that applicant amend the claim to recite "selected from the group consisting of" instead of "selected from the group of." Appropriate correction is required.

5. The following new grounds of rejection are necessitated by the amendment submitted on 01/24/2007.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a mutation at a specific numbered amino acid residue within a recombinant pro-DerP1 allergen, making the claim indefinite. An inserted reference sequence identification number to show exactly where the mutant is different from the reference sequence would make the claims definite. As written, the claim reads on any pro-DerP1 allergen with a cysteine to alanine substitution because the specific position number has no meaning unless it is referrring to a specified sequence.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1, 12 and 18-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for: a recombinant mutant pro-DerP1 allergen from Dermatophagoides pteronyssinus consisting of SEQ ID NO:1 and a composition thereof further comprising an adjuvant; does not reasonably provide enablement for: **a recombinant mutant pro-DerP1 allergen from Dermatophagoides pteronyssinus wherein said mutant allergen** comprises **an alanine substitution of the Cys132 residue of pro-DerP1**; and a vaccine comprising **a recombinant mutant pro-DerP1 allergen** and an adjuvant.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention.

Claims 1 and 18-20 recite "a recombinant mutant pro-DerP1 allergen" without reference to a specific allergen sequence This term encompasses a very large number of allergen mutants, including mutants of as yet discovered pro-DerP1 variants, that have not been disclosed in the specification. As stated supra, the limitation of a mutation at Cys132 does not further limit the claim in the absence of a reference sequence.

The specification disclosure does not enable one skilled in the art to practice the invention without an undue amount of experimentation.

Reasonable correlation must exist between the scope of the claims and scope of the enablement set forth. In view on the quantity of experimentation necessary the limited working

examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

10. Claims 1, 12 and 18-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicant is in possession of: a recombinant mutant pro-DerP1 allergen from Dermatophagoides pteronyssinus consisting of SEQ ID NO:1 and a therapeutic formulation thereof further comprising an adjuvant.

Applicant is not is possession of: **a recombinant mutant pro-DerP1 allergen from Dermatophagoides pteronyssinus wherein said mutant allergen comprises an alanine substitution of the Cys132 residue of pro-DerP1**; and a vaccine comprising **a recombinant mutant pro-DerP1 allergen** and an adjuvant.

Claims 1 and 18-20 recite "a recombinant mutant pro-DerP1 allergen" without reference to a specific allergen sequence This term encompasses a very large number of allergen mutants, including mutants of as yet discovered pro-DerP1 variants, that have not been disclosed in the

specification. As stated supra, the limitation of a mutation at Cys132 does not further limit the claim in the absence of a reference sequence.

Therefore, the skilled artisan cannot envision all of the pro-DerP1 allergens recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath

at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the final Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (Reference U; PTO-892 mailed 06/06/2205) in view of WO 94/05790 (Reference BA; IDS filed on 05/19/200).

Robinson et al. teaches a recombinant DerP1 allergen from Dermatophagoides pteronyssinus wherein said mutant allergen comprises an alanine substitution (In particular, page 18, last paragraph in right column) of the Cys34 residue (corresponding to the Cys132 residue in the pro-DerP1 form as evidenced by the specification at page 7, lines 6-9 in particular) of DerP1

(page 16, right column); and the use of the recombinant mutant allergen to mediate IgE response in vivo. (In particular, paragraph spanning page 18 and 19).

The claimed invention differs from the prior art by the recitation of a pro-DerP1 allergen.

WO 94/05790 teaches a recombinant pro-Derp1 allergen from Dermatophagoides pteronyssinus (In particular, Figure 1A and 1B) comprising DerpP1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the corresponding cysteine residue in the pro-DerP1 form of the allergen because Robinson et al. teaches that cysteine 34 (corresponding to cysteine 132 in the pro-form) is at the catalytic site of the enzyme and enzymatic activity of Derp1 is related to its immunogenicity (In particular, title, whole document).

One of ordinary skill in the art at the time the invention was made would have been motivated to do so because the pro-DerP1 allergen comprises the Derp1 allergen. Therefore, a skilled artisan would have a high expectation of success in generating a recombinant mutant pro-Derp1 allergen with the same mutation at cysteine 132 corresponding to cysteine 34 in the mature DerP1 allergen.

From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

13. Claims 1 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (Reference U; PTO-892 mailed 06/06/2205) in view of WO 94/05790 (Reference BA; IDS filed on 05/19/200) and US Patent No. 5,762,943 (Reference A; PTO-892 mailed on 06/06/2005).

Robinson et al. and WO 94/05790 have been discussed supra.

The claimed invention recited in claims 18-20 differs from the prior art teachings by the recitation of using 3D-MPL in the vaccine composition.

The '943 patent teaches adding 3D-MPL (3D-MLA and 3D-MPL are the same) to an allergen preparation to prevent allergic reactions of the patient to the administered allergen and therefore make safer allergen immunotherapy (Column 2 in particular).

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to add 3D-MPL to the allergen pharmaceutical composition taught by the Robinson et al. and WO/ 94/05790 because the 943' patent teaches that it would make the allergen immunotherapy safer.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so because, as the 943' patent teaches, patients may develop allergic reactions to allergen immunotherapy. Therefore, a skilled artisan would have a high expectation of success in generating a pharmaceutical composition comprising recombinant mutant pro-Derp1 allergen with the same mutation at cysteine 132 corresponding to cysteine 34 in the mature DerP1 allergen and the 3D-MPL adjuvant for use in immunotherapy.

From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

14. No claim is allowed.

15. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of

the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nora M. Rooney whose telephone number is (571) 272-9937. The examiner can normally be reached Monday through Friday from 8:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 12, 2007
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